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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,601	11/01/2001	Ulrike Rohr	2000DE135	8200

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CLARIANT CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
4000 MONROE ROAD
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EXAMINER

RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/004,601

Applicant(s)

ROHR ET AL.

Examiner

Christopher D RoDee

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 18-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 12.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 19 August 2003 has been entered.

Election/Restrictions

Applicant's election without traverse of electrophotographic toners and developers as the elected species in Paper No. 7 is acknowledged. In the election, the toner is further defined as a dry toner and the pigment is an azo pigment. This election is maintained in the present RCE.

Claim Rejections - 35 USC § 112

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-16 and 18-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification as filed does not provide basis for the claims as currently presented because the specification states that the wax coated pigment granules are

Art Unit: 1756

homogeneously incorporated into the binder (¶ [0079]) when the toner is prepared by a adding, grinding, and classifying process. The claims as currently presented do not specify the manner in which the pigment is incorporated into the binder (claims 1-16, 20, and 21) and do not specify which component is incorporated into which material (claims 18 & 19). The claims include within their scope of protection the situation where the pigment is other than homogeneously dispersed in the binder according to the claimed process steps (claims 1-16, 20, and 21) and where the binder and pigment are added to some other material (claims 18 & 19). Such inventions are not described for the process as now presented. New matter is present in the claims, and the claims are, therefore, properly rejectable under this section and paragraph of Code.

Claims 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 18-20 are indefinite because it is unclear what the binder resin and the wax-coated pigment are incorporated into. The claims do not specify any other components in the process and, consequently, it is unclear what components the binder and pigment are incorporated in. Claim 20 is further indefinite because there is no antecedent basis for "during the polymerization process".

Claim Rejections - 35 USC § 103

Claims 1-3, 5-10, 12-16, 18, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Handbook of Imaging Materials* to Diamond, pp. 162-171 & 193-197 in view of Pollard in US Patent 4,173,492 further in view of JP 3-168760.

Art Unit: 1756

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Handbook of Imaging Materials* to Diamond, pp. 162-171 & 193-197 in view of Pollard in US Patent 4,173,492 further in view of JP 3-168760 as applied to claims 1-3, 5-10, 12-16, 18, 19, and 21 above, and still further in view of Macholdt *et al.* in US Patent 6,159,649.

Diamond, Macholdt, and Pollard were described in the prior Office actions. That description and the rationale for combining the references is incorporated here. Additionally, the JP reference is added to the rejection because this document teaches a specific embodiment where a wax coated coloring agent powder is added to a binder resin. The wax coating on the coloring agent reduces bleeding out of the coloring agent from the binder resin (Abstract). A toner having the binder resin and the wax-coated is produced by melt kneading the binder resin and the wax coated coloring agent powder followed by pulverizing.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a wax-coated pigment as the colorant in preparation of the conventional toner as discussed by Diamond because Diamond teaches that dispersion of the colorant in the binder resin is a critical feature in toner manufacture and Pollard teaches that wax-coated pigments have improved dispersion in thermoplastic binder resins. Additionally, the JP reference teaches specifically a toner preparation process where the wax coating on the coloring agent prevents the pigment from leaving the binder resin (i.e., it remains dispersed in the toner binder resin). The artisan would recognize that Diamond, the JP reference, and Pollard are concerned with similar problems and are, therefore, related art. The artisan would use and optimize those pigment sizes as well as pigment and wax compounding amounts suggested by Pollard in order to obtain the benefits taught by Pollard for dispersing pigment into a binder resin.

Art Unit: 1756

With respect to new claims 18, 19, and 21, Pollard suggests that the wax-coated pigment should be well dispersed in the resin in order to provide the desired color (col. 2, l. 46-59). This disclosure in combination with the disclosure of Diamond that the aim of melt mixing is to obtain dispersions closely approximately perfectly distributed ingredients (p. 194) provides ample suggestion that the pigment should be homogeneously present in the toner binder resin. Pollard also teaches that the wax coated coloring agent is added to the thermoplastic resin by means of extruding or a mechanical mixing device (col. 9, l. 45-57), the same type of process taught by Diamond and the JP reference. Given the similar concerns and production methods of the references there is ample motivation to utilize extruding or kneading in preparation of the toner compositions taught by the combined art.

Applicants traverse the rejection of Diamond and Pollard because Diamond teaches that an ultimate dispersion may not be most useful and that the most effective dispersion may not be well understood. Applicants also note that Diamond does not teach how toner pigment and additive dispersion, particle size, and particle size distribution influence the quality of image produced from the toners. Applicants conclude that the rejection is based on an obvious-to-try approach and there is not sufficient motivation to arrive at the claimed invention.

The Examiner has carefully reviewed the applied art and applicant's remarks. Although Diamond does acknowledge that an ultimate dispersion may not be most useful and that the most effective dispersion may not be well understood, the reference clearly does teach melt mixing of the components is performed to obtain a dispersion of the toner components (e.g., colorant) in the binder resin. The instant claims, except claims 18 and 19, do not specify the degree of dispersion desired for the pigment in the binder resin. These claims (1-17 and 21) permit any degree of pigment dispersion in the binder resin. Diamond clearly teaches that the pigment should be dispersed in the binder resin to a degree by the disclosure of a melt mixing

Art Unit: 1756

process. There would be no need to melt mix the toner binder resin, colorant, and other components if the colorant and other components were not desired to be dispersed in the binder resin. Clearly the art in combination suggests the claimed invention because each of the materials and each of the process steps is taught and suggested by the art of record.

Obviousness is further strengthened by the JP reference, which discloses a specific embodiment that has wax coated pigment particles dispersed in a toner's binder resin. Clearly the colorant must be well dispersed in the binder resin in this embodiment because the reference desires the colorant to be dispersed in the binder resin (note mixing processes : col. 9, l. 45+) and does not want the colorant in a position where it can leave the particles (e.g., at the surface). If the colorant and the binder were simply combined without extensive mixing the colorant would be present at the surface of resin particles. The art as a whole provides ample motivation to add wax-coated pigment to a toner binder resin in a mixing, grinding, and classifying process.

The art as a whole also provide motivation to prepare a homogeneous dispersion of the pigment in the binder resin for the reasons above and the reasons of record. The Examiner acknowledges that there is some uncertainty in the art concerning the optimum amount of dispersion of the colorant in a toner binder resin. However, the art clearly teaches that perfectly distributed ingredients (i.e., homogeneous dispersions) are known in the art. The art (Diamond) also recognizes that "often a range of dispersions is produced and evaluated". This clearly indicates that the degree of dispersion is a result effecting variable and that it is well within the level of skill in the art to produce various dispersions and to evaluate the optimum degree of dispersion for a given colorant-binder combination. This degree of experimentation is clearly permitted within the scope of a section 103 inquiry. The art teaches that homogeneous dispersions are known to be effective and that optimization of the degree of dispersion is well

Art Unit: 1756

within the level of skill in the art. Absolute certainty is not required for the Office to properly set forth a *prima facie* case of obviousness where the art provides reasonable guidance to arrive at the claimed invention. *In re Rinehart*, 189 USPQ 143. The art reasonable provides such guidance here. The current rejection is not an obvious-to-try approach as asserted in the response because the art provides guidance to arrive at a homogeneous dispersion and gives reasonable certainty that such a dispersion would be effective.

The evidence of record has been carefully considered. Each of the inventive examples uses an azo pigment (Pigment Yellow 180) treated with a polyethylene wax. The comparative examples either do not contain a wax (Comparative Example 7) or mix the wax with the components rather than coating the wax on the pigment (Comparative Example 8). The wax-treated pigment is incorporated into a Bisphenol A-polyester binder resin to form each inventive toner. Uncoated pigments are incorporated into the binder of the comparatives. The charge characteristics of these toners, and comparative toners having uncoated azo pigment are analyzed.

The evidence of record is not persuasive because it does not specify the size of the wax coated and uncoated pigment particles when added to the binder resin. This is a material limited in the claimed process ("wax-coated pigment granules having a particle size of between 0.05 to 5 mm"). Because this parameter is not specified in the instant evidence it is not clear if the evidence is within the scope of the instant claims (e.g., the wax-coated pigment may have a size outside the range of 0.05 to 5 mm). It is also not clear that the wax-coated pigment size(s) are commensurate in scope with the instant claims.

The evidence is also not persuasive because the variance in charging over time (5 mins to 2 hrs) in Example 6 (from -19 to -10 $\mu\text{C/g}$) is of the same degree as the variance over the same time as Comparative Example 8 (from -12 to -7 $\mu\text{C/g}$). No unexpected result is present

Art Unit: 1756

for toners prepared by the claimed method. The Examiner notes the absolute amount of charging is different in Example 7 and Comparative 8, but this appears to be the result of charge control agent present in the inventive toner. No charge control agent is present in the comparative. Because the evidence does not show an unexpected result for the claimed process and toner as compared to the prior art, the rejections are maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher D RoDee whose telephone number is 703 308-2465. The examiner can normally be reached on most weekdays from 6 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703 308-2464. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0661.

cdr
23 September 2003


CHRISTOPHER RODEE
PRIMARY EXAMINER